THE EFFECT OF NUTRIENTS ON ORAL DENTAL HEALTH

Anais Nazifova[1], Gergana Georgieva[2], Mario Milkov[2]

[1]Student, Faculty of Dental Medicine, Medical University of Varna

[2]Department of Dental Material Science and Prosthetic Dental Medicine, Faculty of Dental Medicine, Medical University of Varna

ABSTRACT

Introduction: The oral health of each individual is related to and dependent on the nutrients they take. They determine the duration and quality of life of each person. Nutritional prevention of oral diseases is the proper balancing of nutrition during different periods of development of oral structures.

Aim: The aim of the present study is to investigate the relationship between nutrition and dental disease and to present nutritional recommendations for their prevention.

Materials and Methods: For the period January 2022–February 2022, in the available database (PubMed, Web of Science, Scopus), a systematic analysis of scientific publications examining the impact of nutrients on oral health was conducted.

Discussion: Nowadays, principles for rational nutrition are constantly being created and updated. A food pyramid has been set up at the US Department of Agriculture. It presents the intake of various foods and seeks to reduce oral diseases. The essential nutrients that are protein, carbohydrates, fats, minerals, and vitamins are extremely important for oral health. Proper nutrition in the period of growth and development determines the construction and maintenance of oral structures. The links between oral health, diet and nutrition status, and general health are complex with many interrelated factors. Inaccurate nutrition can affect oral health, including dental caries, periodontal disease, oral disease, and anemia. Impaired oral health can change food choices and negatively affect food intake, leading to suboptimal nutritional status, which in turn can lead to chronic systemic diseases. One of the causes of dental diseases is the intake of unhealthy and incomplete food.

Conclusion: Achieving and maintaining oral health is done through nutritional prophylaxis. Recognizing and treating oral health and nutrition problems are important for improving health and quality of life.

Keywords: *dental caries, dietary nutrition, oral health*

INTRODUCTION

The oral health of each individual is related and interdependent to the nutrients they take. They determine the duration and quality of life of each person. Nutritional prevention of oral diseases is the proper balancing of nutrition during different periods of development of oral structures. Impaired oral health can alter food choices and negatively impact food intake, leading to suboptimal nutritional status, which increases the risk of chronic systemic diseases

Address for correspondence:
Gergana Georgieva
Faculty of Dental Medicine
Medical University of Varna
84 Tzar Osvoboditel Blvd
9002 Varna, Bulgaria
email:gerganageorgieva991@gmail.com

Received: 2022
Accepted: 2022

Recognizing and treating oral health and nutritional problems is important to improving health (1).

AIM

The aim of the present study is to investigate the relationship between nutrition and dental disease and to present nutritional recommendations for its prevention.

MATERIALS AND METHODS

For the period January 2022–February 2022, in the available database (PubMed, Web of Science, Scopus), a systematic analysis of scientific publications examining the impact of nutrients on oral health was conducted.

RESULTS

The reflection of nutrition affects the formation, functions, and development of jaws, teeth, and periodontium, i.e., issues of oral physiology and pathology.

1. Changes in the masticatory apparatus—changes in the function of nutrition lead to changes in the masticatory apparatus and the appearance of a number of anomalies. Studies show that primates had 40–52 teeth, and todays' human has 32 teeth. This tendency to reduce the number of teeth is known as hypodontia.
2. Changes in the teeth—simultaneously with the reduction in the number of teeth, the shape of the dentition changes, which goes from elliptical to parabolic. The shape of the teeth also changes - the size of the crown, the depth of the fissures and the location of the roots (2). Abnormalities in the location of the teeth are also very common—dislocations, rotations, etc.
3. Changes in the periodontium—changes in the function of the masticatory apparatus also decrease the turnover, development, and resistance of the oral mucosa, gingiva, and periodontium. Certain dystrophies can be considered a source of pathology of defective nutrition. Dystrophies of the oral mucosa, gingiva, and periodontium are more difficult to detect during young age.

Nowadays, principles for rational nutrition are constantly being created and updated. A food pyramid has been set up at the US Department of Agriculture (3). It presents the intake of various foods seeking to reduce oral diseases. Nutritional recommendations for caries prevention: the diet should be balanced and consistent with the food pyramid; parents and children to learn to avoid cariogenic food. The essential nutrients that are protein, carbohydrates, fats, minerals, and vitamins are extremely important for oral health. The food pyramid divides foods into five groups. At the base are whole grain foods—rice, bread, wheat, and pasta. They are a source of carbohydrates and minerals. The original pyramid indicated six to eleven intakes per day. This is unacceptable in terms of caries prevention, as frequent feeding creates a local cariogenic situation. It is accepted that these food items can be consumed at any of the three main meals. The second level of the pyramid is occupied by the group of fruits and vegetables. They provide vitamins, minerals, and carbohydrates. The third food group is that of meat. It includes meat, fish, and eggs. This group provides proteins, vitamins, and minerals. The fourth group of is dairy foods. They are a major source of calcium. Foods in the fourth and fifth groups should be taken 2–3 times a day. The sixth group represents the small apex triangle. These are the carbohydrates and fats that carry a lot of calories and should be taken in very small amounts. The main nutrients—proteins, carbohydrates, fats, minerals and vitamins, are extremely important for oral health. The fat-soluble vitamins are A, E, D, and K. Vitamin A is involved in the early development of enamel. It controls the proliferation of epithelial cells and its deficiency affects all ectodermal formations. Sources can be fish oil, pepper, tomatoes, cow's milk, pumpkins, etc. Vitamin D contributes to the mineral density of the teeth, to the building of the enamel, to the transfer and absorption of calcium in the dental and bone tissue. Vitamin C, or ascorbic acid, is a water-soluble vitamin. It is found in many fresh fruits and vegetables. It is necessary to hydrolyze proline and lysine in the formation of collagen. Vitamin C deficiency causes scurvy, which is a connective tissue defect. Proper nutrition in the period of growth and development determines the construction and maintenance of oral structures. The links between oral health, diet and nutrition status, and general health are complex with many interrelated factors. Inaccurate nutrition can affect oral health, including

dental caries, periodontal disease, oral disease, and anemia (4). Impaired oral health can change food choices and negatively affect food intake, leading to suboptimal nutritional status, which in turn can lead to chronic systemic diseases.

There are combinations of different foods and they have specific effects: there is a combination of foods to increase chewing function, self-cleaning, saliva flow; a combination of dairy (5) and carbohydrate foods; combination of raw and cooked foods.

Important rules for good oral hygiene: regular cleaning of teeth, proper mechanical and chemical treatment of tooth surfaces, flossing and tongue cleaning. The tongue needs special care for its hygiene. Many diseases in the oral cavity are due to poor hygiene of the tongue (6).

CONCLUSION

One of the causes of dental diseases is the intake of unhealthy and incomplete food (7). Achieving and maintaining oral health is achieved through nutritional prophylaxis. Recognizing and treating oral health and nutrition problems are important for improving health and quality of life (8).

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